

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bosman et al. (US Patent No. 5,254,892, herein after Bosman) in view of Soya (JP Patent Pub. No. 05207725, using machine translation and translated abstract, herein after Soya), Ineson et al. (US Patent No. 5,334,897, herein after Ineson) and Ueno et al (US PAT 6170275 B1, herein after Ueno).

2. Re claim 3, Bosman discloses an enclosed motor comprising:

a metallic motor casing 26 (fig 3, col. 6, Ins. 31-40) having a peripheral wall portion 102 (fig 3) formed in a cylindrical shape (fig 10) and an end wall portion (fig 3, portion of 26 touching and going through 24) for closing one end opening of said peripheral wall portion 102 (fig 3);

a rotor 30 (fig 2) provided in said metallic motor casing 26 to drive an output shaft 22 (fig 2) projecting from said metallic motor casing 26 through a shaft hole (figs 2-3) in the end wall portion (fig 3);

a stator 28 (figs 2-3) provided at the periphery of said rotor 30 in said metallic motor casing 26 to rotationally drive said rotor 30 (col 1, lns 14-17);

a cover member 36 (figs 2-3) provided to close an other end opening of said metallic motor casing 26 (fig 3);

a connector body 86 (fig 3) integrally formed of a resin (col 5, lns 55-58) ;

wherein said cover member 36 so as to integrally hold a connector pin 84b (fig 3), a portion on a distal end side of which is arranged in said connector body 86 (fig 3) when said connector body is molded (col 5, lns 55-58), and a proximal end portion of said connector pin 84b serving as a terminal 3a (fig 3) for connecting an end portion of a coil 94 (fig 3, col 5, lns 59-68 & col 6, lns 1-2) in said stator 28, and the terminal 3a is located on an outside in an axial direction of a bobbin 42 (fig 4) on which said coil 94 in said stator is wound.

Bosman discloses all elements of claim 3 except that:

the connector body closes the other end opening of said motor casing from the outside of said cover member;

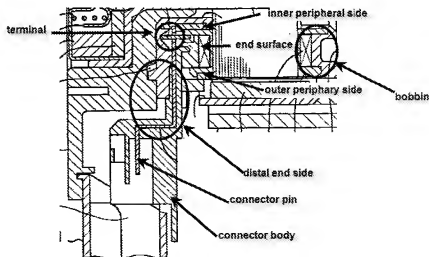
the cover member is formed integrally with said stator using a resin for integrally forming said stator;

the terminal is provided on an inner peripheral side of the bobbin along an end surface of the axial direction of the bobbin and the portion on the distal end side of the connector pin which is arranged in said connector body is provided so as to extend on the outer periphery side of the bobbin along an end surface in the axial direction of the bobbin.

Soya discloses the cover member (fig 11) is formed integrally with said stator (fig 11) using a resin for integrally forming said stator (figs 11-12, trans. abst.).

Ineson discloses the connector body 66 (figs. 1, 2 & 3, col. 4, lines 5-7) integrally formed of a resin (col. 4, lines 56-61) so as to close the other end opening of the metallic motor casing (fig. 2, front end cover 18 and stator shroud 14, the other end opening to the right of shroud 14 in fig. 2) from the outside of the cover member 16 (figs. 2 & 3, col. 4, lines 5-13).

Ueno discloses the terminal (fig 1 and below) is provided on an inner peripheral side of the bobbin 46 (fig 1 and below) along an end surface of the axial direction of the bobbin 46 (fig 1 and below) and the portion on the distal end side of the connector pin 49a (fig 1 and below) which is arranged in the connector body 49 is provided so as to extend on the outer periphery side of the bobbin 46 along an end surface in the axial direction of the bobbin 46 (fig 1 and below).



It would have been obvious to one of ordinary skill in the art at the time of the invention to:

employ the stator and cover member of Soya in the motor of Bosman in order to reduce manufacturing time by making the stator and cover together.

employ the connector body of Ineson with the motor of Bosman in order to protect and seal the motor from outside elements (Ineson, col. 1, Ins. 6-8, 45-47).

combine the connector pin of Ueno with the motor of Bosman in order to reduce the size of the motor in the axial direction, by positioning the connector pin so that it extends in a radial direction (with respect to the motor axis), than in an axial direction (as in fig 3 of Bosman).

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bosman et al. (US Patent No. 5,254,892, herein after Bosman) in view of Soya (JP Patent Pub. No. 05207725, using machine translation and translated abstract, herein after Soya), Ineson et al. (US Patent No. 5,334,897, herein after Ineson) and Ueno et al (US PAT 6170275 B1, herein after Ueno) in view of Ineson et al. (US Patent No.6,455,973 B1, herein after Ineson II).

Re claim 5, Bosman in view of Soya, Ineson and Ueno disclose the enclosed motor, as discussed above for claim 3, but fail to disclose the connector body is configured so that a surface directed toward the end wall portion side in the axial direction of said metallic motor casing serves as a flange surface for being installed to a member to which the motor is installed by being brought into contact with the member to which the motor is installed.

Ineson II discloses the connector body 58 (fig. 1) is configured so that a surface directed toward the end wall portion side 12 (fig. 1) in the axial direction of said metallic motor casing 50 (fig. 1) serves as a flange surface (fig. 1, at bolts 72,74) for being installed to a member 56 (fig. 1) to which the motor 10 (fig. 1) is installed by being brought into contact with the member 56 to which the motor 10 is installed (fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the connector body flange of Ineson II with the connector body of Bosman in view of Soya, Ineson and Ueno in order to reduce manufacturing cost and time by combining a flange with the connector body.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bosman et al. (US Patent No. 5,254,892, herein after Bosman) in view of Soya (JP Patent Pub. No. 05207725, using machine translation and translated abstract, herein after Soya), Ineson et al. (US Patent No. 5,334,897, herein after Ineson) and Ueno et al (US PAT 6170275 B1, herein after Ueno) in view of in view of Chol (US Patent No. 7,406,747, herein after Chol).

Re claim 6, Bosman in view of Soya, Ineson and Ueno disclose the enclosed motor, as discussed above for claim 3. Bosman further discloses a rotor 30 (figs. 2, 3 & 6a-6d, col. 3, lines 62-65) that has a support shaft portion (figs. 6a-6b, made up of barrier member 56 and hub 62) formed of polybutylene terephthalate (figs. 2 & 6b, col. 4, lines 45-49) and a rotor magnet 68 (fig. 6c) fixed on the outer peripheral surface of

said support shaft portion (fig. 6c,)and the outer peripheral surface of said support shaft portion is supported rotatably (figs. 3 & 6d, col. 4, lines 63-66).

Bosman discloses all elements of claim 6 except that the support shaft is formed of a material having a self-lubricating property.

Chol discloses polybutylene terephthalate is a material having a self-lubricating property (col. 5, lines 8-11).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the support shaft of Bosman is self-lubricating as taught by Chol (col. 5, lines 8-11).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Enomoto et al. (US PAT 6669166 B2, figs 10-12) and Takagi (US PAT 5073735, fig 1) similar connector pin locations as Ueno.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC JOHNSON whose telephone number is (571) 270-5715. The examiner can normally be reached on Monday-Friday 8 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached on (571) 272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/
Supervisory Patent Examiner, Art Unit 2834

/ERIC JOHNSON/
Examiner, Art Unit 2834